

What is claimed is:

1. A zoom lens system for forming an optical image of a subject on a light-receiving surface of an image sensor that converts the optical image into an electrical signal,
the zoom lens system comprising, from an object side thereof, at least a first lens unit, a second lens unit, and a third lens unit,
the zoom lens system achieving zooming by varying distances between the lens units,
the first lens unit having a negative optical power,
the second lens unit having a positive optical power,
wherein the zoom lens system fulfills the following condition:

$$0.1 < Bf / Y' < 1.0$$

where

Bf represents an axial distance from a last lens surface to an image plane (in a case where a last lens element is movable during zooming, a minimum axial distance from the last lens surface to the image plane throughout a zoom range); and

Y' represents half a diagonal length of an image-sensing area.

2. A zoom lens system as claimed in claim 1,
wherein the zoom lens system fulfills the following condition:

$$0.2 < P23 / Pw < 1.0$$

where

P23 represents a composite optical power of the second and third lens units; and

Pw represents an optical power of the zoom lens system as a whole at a wide-angle end.

3. A zoom lens system as claimed in claim 1,

wherein the zoom lens system fulfills the following condition:

$$-0.8 < P1 / Pw < -0.1$$

where

P1 represents an optical power of the first lens unit; and

Pw represents an optical power of the zoom lens system as a whole at a wide-angle end.

4. A zoom lens system as claimed in claim 1,

wherein the zoom lens system fulfills the following condition:

$$0.15 < P3 / Pw < 0.85$$

where

P3 represents an optical power of the third lens unit; and

Pw represents an optical power of the zoom lens system as a whole at a wide-angle end.

5. A zoom lens system as claimed in claim 1,
wherein the zoom lens system fulfills the following condition:

$$-0.15 < (R1 + R2) / (R1 - R2) < 0.5$$

where

- R1 represents a radius of curvature of an object-side surface of a lens element disposed at a most image-side end of a last lens unit; and
- R2 represents a radius of curvature of an image-side surface of the lens element disposed at the most image-side end of the last lens unit.

6. A zoom lens system as claimed in claim 1,
wherein the second lens unit includes an aperture stop.
7. A zoom lens system for forming an optical image of a subject on a light-receiving surface of an image sensor that converts the optical image into an electrical signal,
the zoom lens system comprising, from an object side thereof, at least a first lens unit, a second lens unit, and a third lens unit,
the zoom lens system achieving zooming by varying distances between the lens units,
the first lens unit having a negative optical power,
the second lens unit having a positive optical power,
wherein the zoom lens system fulfills the following condition:

$$0.1 < Bf / fw < 0.8$$

where

Bf represents an axial distance from a last lens surface to an image plane (in a case where a last lens element is movable during zooming, a minimum axial distance from the last lens surface to the image plane throughout a zoom range); and

fw represents a focal length of the zoom lens system as a whole at a wide-angle end.

8. A zoom lens system as claimed in claim 7,
wherein the zoom lens system fulfills the following condition:

$$0.2 < P23 / Pw < 1.0$$

where

P23 represents a composite optical power of the second and third lens units; and

Pw represents an optical power of the zoom lens system as a whole at a wide-angle end.

9. A zoom lens system as claimed in claim 7,
wherein the zoom lens system fulfills the following condition:

$$-0.8 < P1 / Pw < -0.1$$

where

P1 represents an optical power of the first lens unit; and
Pw represents an optical power of the zoom lens system as a whole at a wide-angle end.

10. A zoom lens system as claimed in claim 7,
wherein the zoom lens system fulfills the following condition:

$$0.15 < P3 / Pw < 0.85$$

where

P3 represents an optical power of the third lens unit; and
Pw represents an optical power of the zoom lens system as a whole at a wide-angle end.

11. A zoom lens system as claimed in claim 7,
wherein the zoom lens system fulfills the following condition:

$$-0.15 < (R1 + R2) / (R1 - R2) < 0.5$$

where

R1 represents a radius of curvature of an object-side surface of a lens element disposed at a most image-side end of a last lens unit; and

R2 represents a radius of curvature of an image-side surface of the lens element disposed at the most image-side end of the last lens unit.

12. A zoom lens system as claimed in claim 7,
wherein the second lens unit includes an aperture stop.

13. A zoom lens system for forming an optical image of a subject on a light-receiving surface of an image sensor that converts the optical image into an electrical signal,
the zoom lens system comprising three lens units, namely, from an object side thereof,
a first lens unit having a negative optical power, a second lens unit having a positive optical power, and a third lens unit having a positive optical power,
the zoom lens system achieving zooming by varying distances between the lens units,
wherein the zoom lens system fulfills the following condition:

$$0.2 < P_{23} / P_w < 1.0$$

where

P₂₃ represents a composite optical power of the second and third lens units; and
P_w represents an optical power of the zoom lens system as a whole at a wide-angle end.

14. A zoom lens system as claimed in claim 13,
wherein the zoom lens system fulfills the following condition:

$$-0.8 < P1 / Pw < -0.1$$

where

P1 represents an optical power of the first lens unit; and
Pw represents an optical power of the zoom lens system as a whole at a wide-angle end.

15. A zoom lens system as claimed in claim 13,

wherein the zoom lens system fulfills the following condition:

$$0.15 < P3 / Pw < 0.85$$

where

P3 represents an optical power of the third lens unit; and
Pw represents an optical power of the zoom lens system as a whole at a wide-angle end.

16. A zoom lens system as claimed in claim 13,

wherein the zoom lens system fulfills the following condition:

$$-0.15 < (R1 + R2) / (R1 - R2) < 0.5$$

where

R1 represents a radius of curvature of an object-side surface of a lens element

disposed at a most image-side end of a last lens unit; and

R2 represents a radius of curvature of an image-side surface of the lens element disposed at the most image-side end of the last lens unit.

17. A zoom lens system as claimed in claim 13,

wherein the second lens unit includes an aperture stop.

18. A zoom lens system for forming an optical image of a subject on a light-receiving surface of an image sensor that converts the optical image into an electrical signal,

the zoom lens system comprising, from an object side thereof, at least a first lens unit, a second lens unit, and a third lens unit,

the zoom lens system achieving zooming by varying distances between the lens units,

the first lens unit having a negative optical power,

the second lens unit having a positive optical power,

wherein the zoom lens system fulfills the following condition:

$$0.01 < Bf / Lw < 0.2$$

where

Bf represents an axial distance from a last lens surface to an image plane (in a case where a last lens element is movable during zooming, a minimum axial distance from the last lens surface to the image plane throughout a zoom range); and

Lw represents a length from a most object-side surface of the zoom lens system to

the image plane at a wide-angle end.

19. A zoom lens system as claimed in claim 18,
wherein the zoom lens system fulfills the following condition:

$$0.2 < P_{23} / P_w < 1.0$$

where

P₂₃ represents a composite optical power of the second and third lens units; and
P_w represents an optical power of the zoom lens system as a whole at a wide-angle end.

20. A zoom lens system as claimed in claim 18,
wherein the zoom lens system fulfills the following condition:

$$-0.8 < P_1 / P_w < -0.1$$

where

P₁ represents an optical power of the first lens unit; and
P_w represents an optical power of the zoom lens system as a whole at a wide-angle end.

21. A zoom lens system as claimed in claim 18,
wherein the zoom lens system fulfills the following condition:

$$0.15 < P_3 / P_w < 0.85$$

where

- P₃ represents an optical power of the third lens unit; and
- P_w represents an optical power of the zoom lens system as a whole at a wide-angle end.

22. A zoom lens system as claimed in claim 18,
wherein the zoom lens system fulfills the following condition:

$$-0.15 < (R_1 + R_2) / (R_1 - R_2) < 0.5$$

where

- R₁ represents a radius of curvature of an object-side surface of a lens element disposed at a most image-side end of a last lens unit; and
- R₂ represents a radius of curvature of an image-side surface of the lens element disposed at the most image-side end of the last lens unit.

23. A zoom lens system as claimed in claim 18,
wherein the second lens unit includes an aperture stop.

24. An image-taking apparatus comprising:
a zoom lens system as claimed in one of claims 1, 7, 13, and 18; and

the image sensor.